



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/006,449	11/21/2001	Richard T. Cusick	1379-0002	4156

7590

06/18/2003

THE JOHNS HOPKINS UNIVERSITY
Applied Physics Laboratory
11100 Johns Hopkins Road
Laurel, MD 20723-6099

EXAMINER

LUU, THANH X

ART UNIT

PAPER NUMBER

2878

DATE MAILED: 06/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/006,449

Applicant(s)

CUSICK ET AL.

Examiner

Thanh X Luu

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s) ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other:

DETAILED ACTION

Oath/Declaration

1. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Inventor Richard Cusick did not put the date when he signed the declaration.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of sensors arranged in a two-dimensional array (claim 3); the plurality of sensors capable of transmitting electromagnetic energy (claim 4); fiber optic light sensors (claim 5); an impact of projectiles (claim 6); the overlap of narrow and wide fields of view (claim 7); the sensors arranged around the circumference of a cylindrical object (claim 8) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claim 6 is objected to because of the following informalities:

In claim 6, "the impact of projectiles" lacks proper antecedent basis. Further it is unclear how an impact of projectiles is related to the sensor array system.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 4, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Sugita et al. (U. S. Patent 5,196,689).

Regarding claims 1, 2, 4, Sugita et al. disclose (see Figure 40) a sensor array for detecting the position of an object or energy source, comprising: a plurality of sensors (L_A - L_G), each sensor having a limited field of view (A-G) and being capable of detecting an object or energy source that is positioned within its field of view, wherein the fields of view (A-G) of at least some of the sensors overlap (AB, BC, ABC, BCD, etc) the fields of view of other sensors, the overlapping fields of view defining unique spatial regions; and a data acquisition system (see Figure 35), operatively connected to the plurality of sensors, for determining which sensors simultaneously detect an object or energy source, thereby determining the unique spatial region in which the object or energy source is located. Sugita et al. further disclose (see Figure 34) the plurality of sensors (305-307) arranged in a linear array. The plurality of sensors is capable of transmitting electromagnetic energy (the detected signals are transmitted to the data acquisition system).

6. Claims 1-4 and 6, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Hoffman et al. (U.S. Patent 2,442,690).

Regarding claims 1-4 and 6, Hoffman et al. disclose (see Figure 2) a sensor array for detecting the position of an object or energy source, comprising: a plurality of sensors (photocells), each sensor having a limited field of view and being capable of detecting an object or energy source that is positioned within its field of view, wherein the fields of view of at least some of the sensors overlap the fields of view of other sensors, the overlapping fields of view defining unique spatial regions; and a data acquisition system (see Figure 1), operatively connected to the plurality of sensors, for determining which sensors simultaneously detect an object or energy source, thereby determining the unique spatial region in which the object or energy source is located. Hoffman et al. further disclose (see Figure 2) the plurality of sensors arranged in a linear array or the plurality of sensors (see Figure 1) arranged in a two-dimensional array (sensors in both stations 15 taken together). The plurality of sensors is capable of transmitting electromagnetic energy (the detected signals are transmitted to the data acquisition system). Hoffman et al. further disclose (see column 2, lines 5-9) detecting projectiles. Since there is no structural limitation, an impact of projectiles is inherently detected in the device of Hoffman et al. as well.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2878

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over either one of Sugita et al. or Hoffman et al.

Regarding claim 5, Sugita et al. or Hoffman et al. disclose the claimed invention as set forth above. Sugita et al. and Hoffman et al. do not specifically disclose fiber optics. However, fiber optics are notoriously well known in the art to reduce interference from ambient radiation or reduce light loss in sensors. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide fiber optic light sensors in the apparatus of either Sugita et al. or Hoffman et al. to reduce signal attenuation and improve detection.

9. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugita et al.

Regarding claim 7, Sugita et al. disclose the claimed invention as set forth above. Sugita et al. do not specifically disclose a first group of sensors having a more narrow field of view than a second group of sensors. However, Sugita et al. do teach (see Figure 18) configuring sensors having a narrower field of view than another sensor. Thus, Sugita et al. recognize that any desired detection area or sensitivity is configured by varying the fields of view. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a first group of sensors having a more narrow field of view than a second group of sensors in the apparatus of Sugita et al. to provide more refined detection at desired detection areas.

Regarding claim 8, Sugita et al. disclose the claimed invention as set forth above. Sugita et al. do not specifically disclose arranging the sensors around the circumference of a cylindrical object. However, Sugita et al. do teach (see Figure 40) arranging the sensors circumferentially. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the sensors around the circumference of a cylindrical object in the apparatus of Sugita et al. to enclose the detection area to thereby reduce interference and improve detection.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoffman et al. in view of Sugita et al.

Regarding claim 8, Hoffman et al. disclose the claimed invention as set forth above. Hoffman et al. do not specifically disclose arranging the sensors around the circumference of a cylindrical object. However, Sugita et al. do teach (see Figure 40) arranging the sensors circumferentially. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide the sensors around the circumference of a cylindrical object in the apparatus of Hoffman et al. in view of Sugita et al. to enclose the detection area to thereby reduce interference and improve detection.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

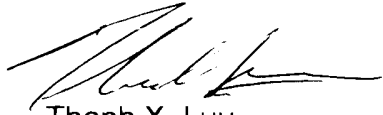
Application/Control Number: 10/006,449
Art Unit: 2878

Page 7

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Porta, can be reached on (703) 308-4852. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
June 13, 2003



Thanh X. Luu
Patent Examiner